An Empirical Study
On The Relationship Between
Dividend Changes and Future Earning
Of The Kuala Lumpur Stock Exchange Listed Companies

By

Lee Vooi Ling

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ABSTRAK

Tesis ini adalah berhubung dengan hipotesis isyarat dividen yang menyatakan bahawa perubahan dividen mengandungi informasi dan dapat digunakan untuk memberi isyarat tentang keuntungan masa depan syarikat. Hasil kajian menunjukkan perubahan dividen tidak dapat memberi isyarat mengenai keuntungan masa depan. Namun, apabila magnitud perubahan dividen diambilkira, ia memberi isyarat kompleks. Peningkatan dividen yang kecil mengisyaratkan peningkatan keuntungan masa depan manakala peningkatan dividen yang besar mengisyaratkan pemerosotan keuntungan masa depan. Hasil kajian juga menunjukkan tiada perbezaan yang bermakna dalam magnitud peningkatan dividen di antara syarikat kecil dan syarikat besar. Namun yang demikian, data masih menunjukkan peningkatan dividen dalam syarikat kecil adalah lebih rendah daripada syarikat besar. Tambahan pula, kajian juga menunjukkan bahawa terdapat perbezaan yang bermakna dalam magnitud perubahan dividen di antara sektor-sektor industri apabila keuntungan masa depan meningkat tetapi tiada perbezaan yang bermakna apabila keuntungan masa depan merosot. Sektor Harta Tanah mempunyai perubahan dividen yang terbesar baik dari segi pemotongan ataupun peningkatan dividen.

ABSTRACT

This thesis is concerned with dividend signaling hypothesis which claims that dividends changes have information content and can be used to signal firms' future prospects. Initially, it was found that dividend change did not support the signaling hypothesis and failed to indicate future earning direction. However when the dividend increased magnitude is taken into consideration, it signals a complex relationship. Small dividend increases will signal future earning increases; whereas large dividend increases will signal future earning decreases. The results showed that there are insignificant differences in dividend changes magnitude between these firms' sizes except in dividend decreases section. Nevertheless, results indicated that small firms have smaller dividend increment than large firms. In dividend decrease section, small firms have significantly larger dividend cut when signaling future earning increases. In addition, the finding also revealed that there are significant differences in dividend changes magnitude between industry sectors to signal future earning decreases but no significant differences to signal earning increases. Properties sector has the largest dividend change either in dividend increase or decrease.

Chapter 1

INTRODUCTION

Introduction

Back to a very basic question of "Why does a firm pay dividend", a firm generally pays dividend can be explained by excess cash flow from its investment needs and investor preference (Damodaran, 1997). The pay out will attract different types of investors. Investor with low incomes and high current needs would prefer high-payout firms; whereas investors in high income brackets would favor low-payout firms. Another consideration point would be the tax advantage between capital gain and income tax effect (Damodaran, 1997; Emery, Finnerty and Stowe, 1998; Rao, 1989; Shapiro and Balbirer, 2000). As a result, investors will invest in firms whose dividend policies match their preferences. To retain its investor clientele attractiveness, firms will carefully decide on their dividend policy.

Undoubtedly, dividends are paid out of earning. For firms to pay or initiate dividends, it is because its operation generates sufficient and excessive cash. It is so termed excessive due to firms should have already considered their investment funding needs. On top of it, firms will also tend to evaluate whether the excessive cash has to be distributed over the years in attempts to keeping cash for unforeseen possible investments or paying out as a one time deal effect (Damodaran, 1997; Emery, Finnerty and Stowe, 1998; Rao, 1989; Shapiro and Balbirer, 2000).

Thus, when there is a shift in the firms' dividend policy, firms are conveying information to the markets. Since dividend is part of earning, the changes should have

provided a signal on a firm earning. Dividend increases can signal future earning increases (Aharony and Dotan, 1994; Daniels, Shin and Lee, 1997; Denis and Sarin, 1994; Kao and Wu, 1994). However, there are also studies claimed that dividend do not provide signal to future earning (Best and Best, 2000; Fama and French, 2000; Kumar and Lee, 2001; Penman, 1983)

Background Information

As early as 1961, Miller and Modigliani (1961) have written in their research paper asserting that cash dividend announcement reflect changes in management's assessment of a firm's future profitability. One can easily see that if a firm were to follow a dividend stabilization policy, a dividend change somehow reflects firm self-belief of its future earning capability. This hypothesized relationship by them was referred to as "the information content of dividends" and was regarded by Watt (1973) as the first statement of the information hypothesis. Ever since then this hypothesis has motivated a considerable amount of theoretical and empirical researches.

For years, literatures have been investigated on the interpretation of what is the information content of dividend change. What does dividend change convey to market? Continuing on this dividend signaling hypothesis, Miller and Rock (1985) explained further on their belief of the information asymmetry between a company's management and outside investors. Any reduction or omission of the cash dividend may indicate future cash-flow weakness and it is not evident in the company's publicly available information; vice versa for increase or initiation. As such, corporate decisions on dividend may signal inside information regarding expected future cash flow.

There are reasons to believe that dividend carries information. First, managers are to some extent restricted as to the kind of public statements they can make. Managers are not able to straightforwardly announce futuristic performance (Lee and Yan, 2003). They are to some extent entangled into legislative obligation if they were to provide wrong information to the market. In relation with information conveying to market, signals from smaller firms are greater than from larger firms (Eddy and Seifert, 1988). Larger firms have better accessibility to financial market than smaller firms (Shapiro and Balbirer, 2000). To fund investment, smaller firms depend more on internal generated cash. As stated earlier, dividend is part of earning. Smaller firms give more prudent attention to its cash flow management.

Secondly, due to random economic factors, reported earning may vary from company's long run normalized earning. Managers are in a better position to understand whether this earning variance is temporary. It is hard for investor to judge the differences and firms' performance in a longer horizon. Thus, managers can use dividend to bridge the understanding gap and to provide a confident indicator of their estimation of firm's future earning capability.

Background Information – Dividend Studies in Malaysia

In his study on determinant of dividend policy in Malaysian firms, Pang (2001) revealed that there are significant differences in dividend payment across industry sectors. Yaakub (2001) also reported significant differences among sectors in firms' dividend payout. Dividend policy is different along the stages of industrial growth (Damodaran, 1997). Higher growth industries tend to pay lesser dividends than lower growth industries. High growth industries require this internal generated cash to fund

more investments. With the recycling of cash, the excessive cash to be divided out to investors will definitely be lower. These studies were on dividend rather than the change of dividend. It will be interesting to look into whether the change in dividend is different across industries.

Pandey (2003) reported that Malaysian firms increase dividend when earning increases. They are reluctant to skip dividend when earning fall however they tend to omit dividend when suffer losses. Pandey has also indicated future area of interest would be the firm size effect on dividend policy. However his study is more focus on dividend policy development which may link current dividend and current earning but not the dividend change signals to future earning.

There are a number of researches investigating the relationship between current dividend and current earning. These studies are carried out to check on the applicability of Lintner's dividend behavioral model, which depicts the relation between current earning to dividend, in Malaysia context. Their results have drawn to the nearly similar conclusion that current year's dividend is based on current year's earning and past year's dividend (Annuar and Shamsher, 1993; Gupta and Lok, 1995). Nevertheless these studies are looking at current dividend derivation, whereas how the movement of dividend over time impacts future sustainability of earning still remains unanswered.

Problem Statement

The above background information and findings suggest a continued need to study, understand and confirm the information content of dividend. This understanding will

be very important for the investors as well as the management team. It is believed that dividend conveys information on future profitability due to information asymmetry. Numerous studies have been carried out to prove this future earning hypothesis. They have also drawn different conclusions on the relationship between future earning and dividend change. However there is lack in similar work done in Malaysia context. Therefore, this research focuses on dividend change and future earning of the Kuala Lumpur Stock Exchange (KLSE) listed companies.

Research Objectives and Questions

The main focus of this research is to examine the relationship between dividend change and future earning in KLSE listed companies. It is based on dividend signaling model that whether market can perceive positive future earning outlook for dividend increment and vice versa. Consistent with an information role for dividends, early studies documented a positive relationship between dividend change and stock price (Ofer and Siegel, 1987; Pettit, 1972). However, this research directly studies on future earning performance in relation to current dividend change.

In order to better understand the relationship, the following objectives were formulated:

1. To identify if there were any relationship between dividend change per share and future earning per share.

2. To identify if dividend changes are different between smaller firms and larger firms.

3. To identify if the above relationship exists in different types of industry sectors.

Bearing on the above objectives, this study attempts to answer the following questions:

1. Does the change in dividend have a simple positive relationship to future earning?

2. Are the dividend changes smaller in small firms than in large firms?

3. Does the relationship of current dividend change and future earning differ among industry?

Significance of the Study

From investors' point of view, investors would like to understand a firm's future earning capability to better safeguard investment. A firm's future earning capability would reflect into stock price and also tell about firm's future dividend payout propensity. It is hoped that the established relationship can serve as an analysis method for investors to forecast their investments. Thus, investors can understand better of the company future performance via its signal from dividend change.

From management's point of view, if the relationship exists between dividend change and future earning, corporate managements should give due consideration to its dividend policy and deliberately make changes in dividend yield. This is because the dividend change will convey information of firm's future earning capability. With current earning information on hand, dividend announcement serves to confirm investors' concern on firm's future financial expectation. An unaligned dividend

change would invite wrong interpretation of future performance and would lead to wrong market reaction to stock price.

Organization of the Dissertation

The background and purpose of the study are provided in Chapter 1. The remaining chapters are organized as follows. Chapter 2 covers the previous related researches, theoretical framework and hypotheses developed. Chapter 3 reviews the research methodology, data collection criteria and statistical analysis methods. Chapter 4 tabulates results, analyzes resulted obtained and verifies stated hypotheses. Chapter 5 discusses the result, states the limitation of study, proposes potential future research area and concludes the findings of this study.

Chapter 2

LITERATURE REVIEW

Previous Research on Dividend Signal

The signaling hypothesis (Miller and Modigliani, 1961) suggests that dividend changes contain new information about future earning. However, evidence on this hypothesis is mixed.

Back to a few decades ago, Lintners (1956) shows corporate managers will raise dividends only if they project a permanent rather than a temporary increase in earning. Since dividend change may reflect managers' permanent earning expectation, dividend increases are interpreted as forecasts of higher future earning and dividend reductions signal lower future earnings.

Watt (1973) can be considered among the first batch of academician to study the information content of dividend. He collected data for a 22-year period from 1946 to 1967. Supporting the information hypothesis, his results indicated positive relationship between future earning changes and current unexpected dividend changes. Nevertheless, the relationship is weak. The average absolute size of the future earning changes conveyed by dividend changes is very small. His explanation is that the speed of dividend adjustment has created noise in information content. It is hard to distinguish whether how much the dividend change is due to a change in firm target payout or firm continues on its partial dividend adjustment policy.

From the same data source, Benartzi, Michaely and Thaler (1997) studied on dividend

change signal in companies listed on New York Stock Exchange from 1979 to 1991. They provided a totally different signal direction which stated that firms' dividend changes are backward looking. Firms that increase dividend in current year have already experienced significant earnings increase in prior year and current year. These increased earnings persist for three years. Similarly, firms that cut dividend experienced a reduction in earning in the same year and prior year. However these firms showed significant earning increase in a year later. The explanation provided was earnings lead dividends and not vice versa. Firms should have confirmed their earning capabilities before risking themselves distributing out cash as dividend. Consistent with Lintner's finding, firms are risk averse to cut dividend.

Benartzi, Michaely and Thaler (1997) findings were reinforced by Ho and Wu (2001) study. Ho and Wu specifically looked into dividend initiation and omission. Similarly, they found that firms who have recorded positive past or concurrent earning change have provided same dividend change direction. In order for firms to initiate dividend, firms have already recorded earning increase. On the other hand, firms will cut dividend if earning has dropped. It provided no signal to future earning.

All of the above studies indicated dividend change has either weak or no information on future earning. However they are also some academicians supporting the dividend signaling hypothesis. In search of the linkage between dividend and earning, Olson and McCann (1994) concluded that the inclusion of dividend data into earning data improves the predictability of future earning. This finding is consistent with the signaling theory of dividend. They found that these firms are higher growth in asset turnover which indicating growth in investment.

It the same year, Aharony and Dotan (1994) examined the association between unexpected dividend change and unexpected future earning change. Unexpected is defined as the difference between actual and expected values. They indicated that firms that increased dividend realized greater unexpected future earnings in subsequent periods than firms maintaining their dividend.

Rather than correlating the absolute size of dividend change to absolute size of future earning change, Mozes and Rapaccioli (1998) categorized the future earning into either increase or decrease however he further defined the dividend change as large or small relative to dividend mean value. Mozes and Rapaccioli provided evidence that future earning decreases are associated with large dividend increases; should the dividend increases are small, future earning will increase. With the larger dividend increase, firms realized of reinvestment opportunities lacking whereas the small increase is due to partial adjustment in dividend payout.

Nissim and Ziv's (2001) claimed that previous studies omitting an important variable which is book value of equity. They pointed out that a drop in return on equity will imply an expected increase in earning. Earning per share figure will carry less information with the change in equity. They showed that dividend changes are positively related to earning changes in each of two years following dividend change. Their conclusion supports the information content of dividend hypothesis.

The reinvestment explanation was also used by Grullon, Michaely and Swaminathan (2002). They rejected the future earning signaling models through dividend. Their finding showed earnings decrease instead of increase after a dividend increase. They

did not breakdown the dividend into neither large nor small. The explanation was when a firm is moving into mature state, its options to grow will reduce. With high return investment opportunities are cut, firm earning growth rate should reduce. Thus, an increase in dividend provides information of shrinking investment opportunities and future earning growth.

The empirical evidence documenting the information content hypothesis has provided mixed results. The focus of this study is looking at how effective the signaling hypothesis in Malaysia context. Aivazian, Booth and Cleary (2003) found that emerging market firms exhibit dividend behavior similar to US firms, in the sense that dividends are explained by profitability, debt and the market to book ratio. However he has also pointed that there are different sensitivities exist in these variables in emerging market.

Reviews on Independent Variables

The following section will be reviewing pervious literatures of the major independent variables considered in this study. There are two areas of interest which are industry type and firm size.

Industry Type

Companies business can be categorized as cyclical, countercyclical or with no cycle pattern. Some business does well while some industry does poorly (Laux, Starks and Yoon, 1998). Michel (1979) and Pinches (1992) noticed differences in dividend payout in United Stated firms. He attributed the results to business risk, maturity, investment and follow-the-leader behavior in each industry sector. In the same market,

Emery, Finnerty and Stowe (1998) also reported that dividend payout ratios vary across industries. They believed that investment opportunities faced by similar industry sectors are the same. Thus, industry sectors with limited investment opportunity will have higher payout. In Malaysia context, Pang (2001) studied on listed companies in Malaysia. He reported that Consumer sector paid highest dividend relative to other sectors and Trading has the lowest payout. His study is on Consumer, Plantation, Industrial Products, Properties and Trading or Services sectors. Similarly, Yaakub (2001) also reported significant differences among sectors in firms' dividend payout but did not indicate which sector has higher payout. All of the above studies showed there is significant difference in dividend payout ratio across industries. However none of them looked at the changes of dividend. Prior studies, which directly focused on changes of dividend to future earning, did not segregate further to industry level. Given the fact that the payout ratios are different in industries, it is worthwhile to explore further to understand whether the dividend signaling hypothesis works for all industries.

Firm Size

It is always believed that dividend signal from small companies is stronger relative to large companies. This is due to the belief that large companies have other means of conveying their business signal. More analysts followed up with larger firms and thus more public information is available for larger firms. It is of that reason smaller firms have more needs to signal than larger firms through dividend (Olson and McCann, 1994). Firm size can be grouped by companies' market value. Using the same firm size classification, Eddy and Seifert (1988) reported that the abnormal returns from an

announcement of a large dividend increase are greater for small firms than for large firms.

Theoretical Framework

Lintner's Model

After series of interviews with corporate managers, Lintner (1956) developed a simple model relating dividend to earning. Corporate managers have revealed to him that firms have long run target dividend payout ratio.

$$D_i = \text{target ratio} \times E_i$$

Where

D_i is the target dividend in year i

E_i is the earning in year i

The dividend change would equal

$$D_i - D_{i-1} = \text{target ratio} \times (E_i - D_{i-1})$$

However, he also found that managers are reluctant to make dividend changes that might have to be reversed. Thus, manager partially increase dividend toward long run target ratio. The speed of adjustment will depend on corporate management.

$$D_i - D_{i-1} = \text{adjustment rate} \times \text{target ratio} \times (E_i - D_{i-1})$$

Predictive Content of Earning

Lintner model has linked up simple model of dividend change and current earning. In further study on information content of dividend, Watt (1973) made a regression form to link dividend and future earning.

$$E_{i,t+1} = \alpha_i + \beta_{1,i} E_{i,t} + \beta_{2,i} E_{i,t-1} + \beta_{3,i} D_{i,t} + \beta_{4,i} D_{i,t-1} + \nu_{i,t}$$

Where

D refers to Dividend per share

E refers to Earning per share

i refers to firm i

t refers to year t

ν is an error term

Watt's result showed weak signal from current dividend to future earning. The average absolute size of the future earning changes conveyed by dividend changes is very small. Rather than correlating the absolute size of dividend change to absolute size of future earning change, Mozes and Rapaccioli (1998) categorized the future earning into either increase or decrease. With these earning categories, Mozes and Rapaccioli compared the size of dividends change using Mann-Whitney test. From here, they drawn conclusion on the size of dividend change provides a signal to future earning.

In addition, they further estimated a logistic regression model using dummy variables as below:

$$CEDOWN = a + a_1 PEDOWN + a_2 PDUP + a_3 PDDOWN + a_4 DIVINC + a_5 DIVDEC$$

Where

CEDOWN is one when current earning decrease or equal zero otherwise

PEDOWN is one when previous earning decrease or equal zero otherwise

PDUP is one when previous dividend increase and zero otherwise

PDDOWN is one when previous dividend decrease and zero otherwise

DIVINC equals the dividend increase if previous dividend increased or zero otherwise.

DIVDEC equals the dividend decrease if previous dividend decreased or zero otherwise.

If the coefficient a4 or coefficient a5 were tested significant, this logistic regression will provide information on relationship between dividend change and future earning change. This serves as a confirmation on Mann-Whitney test.

In the absence of theory specifying the relationship between dividend declared and future earning, various regression models were derived from different researchers. Examples:

(1) $\log(D_t/D_{t-1}) = \beta_0 + \beta_1 \log(E_t/E_{t-1}) + \beta_2 \log(D_{t-1}/E_{t-1}) + \beta_3 \log(E_{t-1}/E_{t-2}) + \epsilon$ (Ming-Shiun 2001)

(2) $\Delta E_{i,t}/P_{i,t-1} = \alpha_i + \beta_{1*} \Delta D_{i,t}/D_{i,t-1} + \beta_{2*} I_{i,0*} \Delta D_{i,t}/D_{i,t-1}$ (Benartzi, Michaely and Thaler 1997)

It can be seen from the chapter on literature review, there are contradicting findings among academicians. The complication of factors linkage does not really guaranteed the best method of analysis. In this study, dividend change is hypothesized to affect future earning. In addition, firm size and industry sectors are hypothesized to have different dividend change.

Hypothesis

For the purpose of this paper, the following hypotheses were formulated and will be tested in line with the objectives of this paper. The hypotheses will be able to address research questioned raised in Section 1.5.

For the first three hypotheses, they are used to investigate the directional change between dividend change and future earning change. Since dividend change can be divided into increase and decrease, Hypothesis 1 and Hypothesis 2 are formulated to test whether future earning change will follow similar direction. They have to be separated in order not to cancel out each other effect on future earning. It is also strongly stressed in Mozes and Rapaccioli (1998) finding that large dividend increase will signal future earning decrease whereas small dividend increase signals future earning increase. Hypothesis 3 is then developed.

H1: Increases in current dividend will have similar directional changes in future earning.

H2: Decreases in current dividend will have similar directional changes in future earning.

H3: Large current dividend increases will signal future earning decreases.

To answer the question of differences between small firm and large firm, Hypothesis 4 and Hypothesis 5 are formed. In addition, since Grullon, Michaely and Swaminathan (2002) and Mozes and Rapaccioli (1998) argued that dividend change provided different directional change in future earning, Hypothesis 6 and Hypothesis 7 are formed. In summary, all of these four hypotheses can be generalized as dividend changes in small firms are smaller than dividend changes in large firms to signal future earning change.

H4: Dividend increases in small firms are smaller than dividend changes in large firms to signal future earning increases.

H5: Dividend decreases in small firms are smaller than dividend changes in large firms to signal future earning decreases.

H6: Dividend increases in small firms are smaller than dividend changes in large firms to signal future earning decreases.

H7: Dividend decreases in small firms are smaller than dividend changes in large firms to signal future earning increases.

Similar to the above analysis on magnitude of dividend change, this study explores further into the behavior of different sectors in providing future earning signal. The

following hypotheses are formulated:

H8: Dividend increases are different among sectors to signal future earning increases.

H9: Dividend decreases are different among sectors to signal future earning decreases.

H10: Dividend increases are different among sectors to signal future earning decreases.

H11: Dividend decreases are different among sectors to signal future earning increases.

Summary

Lintner's model of dividend stresses that firms only increase dividend when management strongly believes earning have permanently increased and are caution of dividend reversal. The signaling theory suggests that management has more information about the value of firms' asset than outside investors. Management use dividend as one of the channel to convey information to market. A dividend increase hints higher future earning prospects and vice versa. Eleven hypotheses have been formulated to explore the relationship between dividend change and future earning. The next step is to determine the research methodology to carry out this study.

Chapter 3

METHODOLOGY

Research Design

This section discussed the issues pertaining to types of study, units of analysis and time horizon. With this fundamental design, it further drafted how the data were defined, data were collected and tests were carried out against the hypotheses.

Type of Study

The main purpose of this study was to test whether the information content of dividend changes brings implication to future earning. Secondary, the factor of firm size was being explored to investigate the connection to this dividend-earning relationship. Thirdly, it continued to study if there are any differences among industry sectors.

Unit of Analysis

Every data was taken from firm listed on the main board of Kuala Lumpur Stock Exchange (KLSE) as of 1st January 2003. The unit of analysis was firm-year observation on dividend change and future earning change.

Time Horizon

The data collection was done over a period of 10 years which was from 1993 to 2002. This was in order to provide a bigger sample size. The dividend data were collected from 1993 to 2000 whereas the future earning data were collected from 1994 to 2001.

Data

Data Collection

The data were gathered from *Stock Performance Guide* published by Dynaquest Sendirian Berhad, *Annual Companies Handbook* and *Investors Digest* published by Kuala Lumpur Stock Exchange. The sector classification was based on *Stock Performance Guide*. The *Stock Performance Guide* was published with the purpose of guiding investor to make decision on which stock to purchase and when to purchase. It divided its information into two sections, namely descriptive and statistic information. Firstly, it collected firm information on ownership, activities, corporate structure and capital structure based on company's handbook. Secondly, it collected firm annual price range, earning per share, dividend per share, dividend yield and price earning ratio from company's handbook and KLSE.

Data Inclusion Criteria

There were altogether 559 firms listed on KLSE main board. To choose from within, the sample firms chosen must fulfill the guidelines below:

(1) Data on firms that have 2 consecutive years in dividend declaration and 3 consecutive years in earning declaration. This is crucial to see a firm's dividend change and its future earning. The future earning was limited to immediate year earning. This is due to dividend continues to change. Collection of more years of future earning data will be contaminated by the effect of continual changes of dividend.

(2) All estimated or forecasted earnings were not taken into consideration.

(3) Finance and Trust firms were removed since as they were bounded by regulatory requirement.

(4) All prior data before a firm listed on KLSE main board were discarded.

(5) All firms with their financial year ended at December. For example, a firm reported high earning with financial year ended in June 2003 did not mean that it had high earning in calendar year 2003 earning but a combination of year 2002 and year 2003 performance. For easier comparison, earning for financial year ended at December should be equal to earning in calendar year end.

(6) Firms remained in same sector classification throughout data collection duration.

These sample selection procedure or requirement resulted in 103 firms being selected for the study. It has yielded 705 numbers of dividend change and earning change data. A table of all sampled firms was placed in Appendix 1.

Major Variables Definition

To represent a firm's dividend and earning, there are numerous ways of reporting. Each of them may provide different meaning. For example, dividend can be reported as gross dividend payout or nett dividend payout. Earning has nett earning or earning before extraordinary item. It is worthwhile to provide description on earning and dividend data captured in this study.

Dividend per Share (DPS)

The dividend in DPS was based on the nett dividend payout in calendar year. This may have differences to firm published dividend per share which use financial year. It was collected in this manner because from research point of view, the study intended to look at future earning. Dividend change was measured as current year dividend minus prior year dividend and the difference was deflated by prior dividend. Dividend

increase referred to positive dividend change whereas dividend decrease referred to negative dividend change. (Benartzi, Michaely and Thaler, 1997; Grullon, Michaely, and Swaminathan, 2002).

Earning per Share (EPS)

The earning in EPS was based on earning before extraordinary item. The earning per share was taken from firms' year end financial report. These EPS and DPS data were adjusted to cater for capitalization change. As the number of share changed over the years, the EPS and DPS fluctuated accordingly. For example, the EPS was recorded as 10 in year 1. When there was a dilution of share in year 2 by 50%. The EPS for year 2 was reported as 5. By merely comparing EPS, it showed a declination of 50% in EPS. However, in actual fact, there was no lost for investor which had doubled the share. In order to have fair comparison among data collected, the year 1 earning had to be multiplied by 50%. Future earning change was measured as next year actual EPS minus prior year EPS and the difference was deflated by prior EPS. Future earning increase referred to positive future earning change whereas future earning decrease referred to negative future earning change.

Tests of Hypothesis

For each firm-year result, two derived data, namely current dividend change and future earning change, were collected. All these derived data were converted into dummy variables. Data representing increases were coded as 1 and data representing decreases were coded as 0. For dividend, an addition code was provided for flat or unchanged dividend. A descriptive cross tabulation for these two dummy variables was run. From the percentages of data fell in each category, the change of dividend

related to its future earning change would be observed. Chi-Square significance tests were used to test whether there was any significant association between dividend change and future earning change. Kolmogorov-Smirnov tests with Lilliefors significance correction were used to confirm the assumption of dividend changes and earning changes exhibited non-normality. From this preliminary test, further tests were carried out to confirm the hypotheses.

Hypothesis 1 and Hypothesis 2

Hypothesis 1 stated that dividend increase will signal future earning increase where Hypothesis 2 stated that dividend decrease will signal future earning decrease. To test Hypothesis 1, a new dummy variable was formed. Data represent similar change direction were coded as 1 and data represent different direction were coded as 0. Since there was only two possible outcomes, either future earning increase or decrease, from each dividend change, a binomial distribution test was carried out (Black, 2001). If there were a significance difference between the groups, the direction of signal should be observed from the higher value group. Similar analysis was performed to verify Hypothesis 2.

Hypothesis 3

Hypothesis 3 stated that large current dividend increases will signal future earning decreases. By filtering the dividend data to dividend increase only, this dividend increase data will have future earning increase data and future earning decrease data. A Mann-Whitney U test was run to determine whether there was difference between these two future earning groups. If there were a significance difference between the

groups, the magnitude of dividend increase to signal both groups could be observed from the ranking value.

Hypothesis 4, Hypothesis 5, Hypothesis 6 and Hypothesis 7

In this study, firm size was defined as its market value. A firm market value depended on its stock price. A firm could be classified as a large firm, relative to median market value, in a particular year but re-classed into small firm the following year. Thus, one can not labeled firm as large or small based on any particular stock price of the entire study period but has to evaluate its market size yearly.

For each year, a median market value was calculated from the sampled firms. The firms which had a market value higher than median market value were classified as large firm. Whereas the firms which had a market value lower than median market value were classified as small firm. Eddy and Seifert (1988) used similar approach in differentiating firm size.

As stated in previous chapter, all of these four hypotheses are generalized as dividend changes in small firms are smaller than dividend changes in large firms to signal future earning change. For each pair of dividend change and future earning change data, a Mann-Whitney test was carried out to investigate whether there were any significance differences between small firms and large firms. If there were a significance difference between the groups, the magnitude of dividend increase to signal both groups could be observed from the ranking value. By comparing the magnitude of dividend change, it could be determined whether small firms' dividend change was smaller than larger firms and confirmed these hypotheses.